MSX Data Access List Signature Form

I have read the MSX Data Release Policy (Version 3.0, April 1996) and agree to abide by its direction. Specifically, I understand that I am not authorized under any circumstances to distribute MSX Level 1A, Level 2, DPC products, or non-peer reviewed Level 3 and 4 data products to anyone who is not listed on the MSX Data Access List. Furthermore, I understand that my future access to MSX data may be revoked if I distribute data in violation of the MSX Data Release Policy. I also agree to return all data to the distribution center from which it was received and remove all data in my possession from local computers should I depart the MSX program.

Name (Printed)	Address/phone #	Signature	Date

MSX Data Release Policy
Version 3.0

April 1996

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MSX Data Release Policy
Version 3.0

April 1996

1.0 PURPOSE To establish the MSX program policy on the release of data products to various user groups such as members of the MSX team, BMDO customer communities, DoD users, and other members of the scientific community. This policy is not intended to restrict a scientist's access to products he or his team has generated, but to ensure the quality of the data and products produced from the MSX program.

2.0 SCOPE

2.1 Data Products This policy covers the release of MSX sensor data, ancillary spacecraft data, and any other data (i.e. corollary and ground test) collected specifically for the MSX program. Auxiliary data are not covered by this policy, but are covered by the policies of the agencies collecting the data. This policy covers all data levels, including final calibration and characterization data and the CONVERT software packages required to produce *Certified* Level 2/2A data sets. These terms are defined in subsequent sections.

2.2 Archive and Distribution Centers This policy covers the release of MSX data from authorized facilities as designated by the MSX Program Office. The primary data archive for MSX data, software, and analysis products is the Backgrounds Data Center (BDC). The BDC will be the primary distribution center for data and software. The Missile Defense Data Center (MDDC) will maintain an archive of targets specific data and will have limited distribution responsibilities. The MSX Principal Investigators (PIs) are responsible for the distribution of analysis products. Information about data release, data and data products can be obtained by contacting the organizations and individuals listed in Appendix A or Appendix B.

2.3 Multiple Release Authority This policy addresses the requirement for multiple release authority for data collected from joint experiments. The MSX satellite will collect data on some targets for which another organization has data release authority. Prior to these data collections, the Program Office and the cognizant agencies will agree upon data release guidelines. As these agreements are documented, they will be added to this policy in Appendix C.

2.4 Duration This policy applies for the duration of the MSX program only. Subsequent to this, the primary archive will be responsible for release and distribution of MSX data in accordance with DoD and BMDO policies (See Appendix D).

2.5 Miscellaneous

2.5.1 This policy does not address the release of data to foreign governments or organizations. Such requests will be handled individually, under existing BMDO policy. Refer to MSX foreign disclosure guidelines. In general, release of MSX data to foreign nationals is prohibited, except when specifically authorized by BMDO, or the data is released for public distribution.

2.5.2 This policy does not cover administrative procedures for the exchange of classified data or the public release of unclassified data. Users should follow their local procedures and/or contract requirements.

3.0 IMPLEMENTATION The MSX Data Manager ensures consistent procedures are established at each authorized data handling facility to implement this policy.

4.0 DEFINITIONS The following paragraphs briefly define the user communities, data types, data levels, and data quality review processes (verification, certification, validation, etc.) Detailed descriptions can be found in the MSX Data Management Plan.

4.1 User Communities Access to MSX data products will vary depending on the organization or community to which the user belongs. The MSX program has defined the following classes of users for purposes of access control.

4.1.1 DCATT Members: The Data Certification and Technology Transfer Team. Includes the Watchdogs for the SPIRIT III, UVISI, SBV, Contamination and OSDP instruments.

4.1.2 MSX Program Users: MSX Principal Investigator (PI) team members, the sensor performance assessment teams (PATs), the Program Office, MSX Data Management personnel, the MOC, MSX DPC (Data Processing Center) personnel and BMDO Data Center personnel working on the MSX program.

4.1.3 BMDO Users: BMDO offices, such as National Missile Defense, Theater Missile Defense and Test and Evaluation; system elements, such as the Ground Based Interceptor program office and their contractors; the BMDO System Engineer; and the BMDO phenomenology modeling communities. Due to the special relationship already established, this group also includes the USAF SBIRS program office and its contractors.

4.1.4 Other DoD Users: Other Army, Navy, Air Force or DoD agency users not receiving funding from BMDO.

4.1.5 Collaborators: Scientists who derive all or most their support from their own organization, plan or help plan specific MSX data collection events to satisfy the objectives of their own organization, but do not participate in any team activities in support of BMDO objectives. (For example, refer to the MOU between BMDO/TR and the NASA Office of Mission to Planet Earth.)

4.1.6 All Other Users: Other members of the science community not included above, such as NASA, NOAA, NSF, and their contractors and grantees.

4.2 Data Types Data are categorized by their source, and whether they were collected expressly for the MSX program.

4.2.1 Sensor Data: Data from the sensors on board the MSX spacecraft, including Contamination and OSDP data.

4.2.2 Ancillary Data: Other spacecraft data, such as attitude, ephemeris and housekeeping.

4.2.3 Corollary Data: Data from other platforms - ground, airborne, or spaceborne - that are collected expressly to support MSX or one of the MSX experiments. Some corollary sensors have their own data access restrictions which will be included in Appendix C when these restrictions are known.

4.2.4 Auxiliary Data: Data from other platforms that are available routinely, such as meteorological satellites. They are required in support of one or more experiments, but are not collected expressly at the request of MSX. The release of auxiliary data is covered by policy set by the organization responsible for collection, NOT by this Policy.

4.2.5 Ground Test Data and Calibrations: Associated data sets, such as target characterization data and instrument calibration data, that are necessary for the analysis of the flight data, and which are collected expressly for the MSX program, but are not collected in concert with the flight data. These data may have additional access restrictions beyond those general access controls imposed by the MSX program. These will be addressed in Appendix C.

4.3 Data Levels Data are further categorized by their level of processing.

4.3.1 Level 0: Raw telemetry output of MSX sensors and housekeeping monitors. Saved temporarily, until Level 1 data are produced. *Exception*: Level 0 dedicated target data are permanently archived.

4.3.2 Level 1: Raw data, in computer-compatible format. Permanently archived.

4.3.3 Level 1A: Level 1 data which have been placed in time order of data collection and separated by instrument. Permanently archived.

4.3.4 Level 1B: Level 1A Data that have been separated by individual instrument (UVISI) or by image (SBV). Produced in an interim step in processing. Not archived.

4.3.5 Level 1C: Data produced by UVISI High Gain Convert for use in selected observations only. Produced in an interim step in processing. Not archived.

4.3.6 Level 2, 2A: Reduced data, flagged with quality indices and processing notes, with calibrations applied. For each sensor system, a CONVERT software package has been developed to process the Level 1A data. Each CONVERT contains a standard and a canonical process. Level 2 data are produced by processing Level 1A data through Standard CONVERT processes which apply sensor dependent corrections. Level 2 data values are expressed in corrected sensor counts (SPIRIT III) or engineering units (UVISI, SBV, and Contamination). Level 2A data are produced by processing Level 2 data through a Canonical CONVERT process. Level 2A data values are expressed in engineering units, e.g. point source extracted irradiance values. Normally archived only as "virtual" Level 2/2A, consisting of Level 1A data and the associated processing notes, verification products (anomaly files or data quality indices), calibration constants, and corresponding version of certified CONVERT.

4.3.7 Level 3: Analyzed data, converted from physical sensor units to derived units, such as column abundances, constituent profiles, target radiant excitence, etc. Interim products in the

analysis process. Selected peer reviewed Level 3 products are archived.

4.3.8 Level 4: Final analysis products, usually in summary form, that address program requirements for phenomenology models, algorithms, etc. Examples are clutter statistics by season, target signatures compared to model predictions, and in-band radiance as a function of Auroral indices. Normally archived.

4.4 Data Quality Review Processes The following define the levels of data "quality" as determined by the degree of processing and review.

4.4.1 Verification: Performed by the Data Processing Center. The determination that the sensor was operating within the certified operating envelope, the quantification of any deviations from the operating envelope, and the quantification of data quality measures. The certified operating envelope is expressed as a set of certified anomaly bounds. Verification is accomplished by processing Level 1A data through a DCATT certified automated Pipeline procedure that is monitored by the sensor Performance Assessment Team (PAT) at each sensor DPC. One output of the Pipeline process is an anomaly file or data quality index file, which identifies deviations from the operating envelope. Level 1A data are recognized as *Verified* after they have been processed through a certified Pipeline and are associated with an anomaly or DQI (Data Quality Index) file.

4.4.2 Certification: Performed by the DCATT PI Team.

4.4.2.1 Software Certification The process of accrediting the automated data verification pipeline and the correct operation of the CONVERT software. CONVERT will be certified when all of the following are certified:

1) Pipeline processing algorithms,
2) CONVERT algorithms,
3) anomaly bounds, and
4) calibration coefficients (instrument products).

4.4.2.2 Data Certification The processing of verified Level 1A data through a correctly used certified version of CONVERT with associated anomaly files or DQIs to produce Level 2/2A data. Only a Level 2/2A data set may be labeled as *Certified* data. The CONVERT software indicates whether the Level 2/2A data is certified based on the verification results.

4.4.3 Validation: Performed by the PI Teams. The process of reviewing analyzed data from an experiment to ensure the scientific content of Level 1A data meets the mission requirements. The PI teams directly validate portions of the database through hands-on analysis. (All data are verified by a certified process, but only a portion of the data base may be directly validated.) Portions of the remaining data will be validated by inference, through similarity to the analyzed data sets. Validated data is considered valid only for the purpose for which it was collected.

4.4.4 Peer Review: The process of assessing the scientific correctness of the analysis approach used in producing Level 3 and 4 products and technical papers. Determines whether data accuracy and precision limits were correctly stated, and whether sensor artifacts were properly accounted for. Conducted by the PI Executive Committee (in part or as a whole) on technical

papers based on the analysis of MSX data, and on processes used by the MSX community to routinely produce Level 3 and 4 products. Once a process has been peer reviewed, products produced by that process will also be considered peer reviewed. Level 3 and 4 products produced within the MSX community may not be released outside the MSX community until they have been peer reviewed.

4.4.5 Data Integrity Review: Performed by MSX Data Management. The review of the processes and products used to generate the Level 2/2A data used as a basis for technical papers and Level 3 and 4 products. Determines whether the correct calibration data and CONVERT software were used.

5.0 RELEASE POLICIES The following policies apply to the release of technical publications, CONVERT software and associated files , data and analysis products to the various user communities. Until data (Level 1 or 2) have been approved for public release by BMDO, all users are prohibited from further dissemination - users may not distribute any MSX data to another user. This is for the user's protection, to ensure that they have the appropriate versions of the CONVERT software and sensor calibration files. At any point in time, there will be only one *Certified* Level 2/2A data set, but it may change throughout the life of the program as sensor characterization and calibration are better understood. Users must agree to abide by this policy before they are granted access to MSX data. Users who fail to abide by the policy will be denied future access to MSX data.

5.1 Technical Publications All users must follow the applicable procedures when producing technical publications and presentations based on MSX data. Appropriate credit should be given to BMDO, the MSX program and any members of the PI or Data Management communities providing assistance. A copy of the final technical paper(s) and the associated final analysis products should be provided to the appropriate BMDO Data Center for archive.

5.1.1 MSX Program Users: Submit technical publications and presentations to the PI executive committee for peer review.

5.1.2 All Other Users: Submit technical publications and presentations to be presented to the general DoD or scientific community (i.e. at symposia or conferences) to the PI executive committee for peer review. Presentations developed for use only within the author's home institution or government sponsor organization need not be submitted for peer review. Users who use CONVERT to produce Level 2 data (instead of receiving it from MSX in Level 2 format) should work with the MSX Data Manager for a data integrity review prior to presenting results to the general DoD or scientific community. A form will be developed by the MSX Data Manager to facilitate the data integrity review process.

(**NOTE:** These reviews may be done simultaneously, where both are required. Procedures will be in place to ensure reasonable turn-around times. These reviews are technical only, and will not satisfy government requirements for security review and unlimited distribution release authority of the publication or presentation based on analysis of the data.)

5.2 CONVERT Packages Developmental versions of CONVERT and associated calibration files are releasable only to DCATT and MSX Data Analysis Centers. Certified versions of CONVERT packages are available to U.S. government agencies and their contractors. The MSX

Program intends to make certified versions of CONVERT available to anyone in the general science community, once the software has been approved for public release.

5.3 Data Access Categories

5.3.1 DCATT Members: DCATT team members and Watchdogs will have access to any and all MSX data for certification and verification purposes. This includes access to ground calibration data before they are certified.

5.3.2 MSX Program Users: MSX program users will have access to all MSX on-orbit data at all levels as is required to perform their MSX responsibilities, and all certified ground calibration data.

5.3.3 BMDO Users: Access to all verified data needed to address the system, element, or phenomenology issues of concern to the user. Access must be requested through the MSX Program Office and can be for specific data sets or entire classes of data as required, on an ad-hoc or subscription basis. Investigators are strongly encouraged to work within the existing MSX PI structure. BMDO users will also have access to all peer reviewed Level 3 and 4 products.

5.3.4 Other DoD Users: Access to validated data sets needed to address the issues of concern to the user. Access must be approved by the MSX Program Office and can be for specific data sets or entire classes of data, on an ad-hoc or subscription basis. Access to unvalidated, but verified data sets will be approved on a case-by-case basis. Other DoD users will also have access to all peer reviewed Level 3 and 4 products.

5.3.5 Collaborators: Access to all data associated with the specific data collection events during which the joint measurements were conducted (assuming users have the appropriate security clearance). Access by collaborators to any other data sets will be under the same rules as the general scientific community (other users, below). Publication rights will be negotiated with the specific PI team involved in the collaboration. Collaborators employed by US government agencies or their contractors will have access to all peer reviewed Level 3 and 4 products (again, assuming users have the appropriate security clearance). Other collaborators will have access to Level 3 and 4 products cleared by BMDO for public release.

5.3.6 All Other Users: Access to specific (normally only unclassified) validated data sets on a case-by-case basis. Access must be approved by the MSX Program Office and will normally be gained only after the responsible PI team has had an opportunity to analyze the data. The PIs will have a period of eighteen months after the collection of a complete data set in which to analyze that data. Other users employed by US government agencies or their contractors will have access to all peer reviewed Level 3 and 4 products (assuming users have the appropriate security clearance). All other users will have access to Level 3 and 4 products cleared by BMDO for public release.

6.0 DATA SOURCES AND ACCESS PROCEDURES Refer to Appendices A-B for lists of facilities authorized to distribute MSX data or analysis products, and specific points of contact. Specific procedures for accessing MSX data are described in the MSX User's Guide.

6.1 General Access Procedures To access MSX data from any source, the user must first be on

the approved MSX master data access list. User names are added to the list by the user's primary MSX point of contact (Data Center, DAC, or DPC manager or PI), and must be approved by the MSX Program Office. Access will be on an individual basis; i.e. a specific person will be authorized to receive data, rather than an institution.

In general, MSX users will receive data through the normal channels of the MSX data management system (see Appendix F). All other users must obtain Level 1A data, the CONVERT software, and associated calibration files and Level 2 data from a BMDO Data Center. Under no circumstances should a user get Level 1A data from other users. This is to ensure that each user has the appropriate versions of the CONVERT software and sensor calibration files. At any point in time, there will be only one *Certified* Level 2/2A data set, but it may change throughout the life of the program as sensor characterization and calibration are better understood.

6.2 MSX Program Office The MSX Program Office must initially approve access by all users. This will normally be done automatically for MSX users; however, if in doubt, submit a request. For information regarding access, contact the MSX Program Office.

6.3 MSX Data Manager or Data System Coordinator Users may contact these individuals with general policy or procedure questions, but will be referred to the data centers for details.

6.4 Archive and Distribution Centers The BMDO Data Centers are the primary source of Level 1A and Level 2 data, certified CONVERTs, ground test and calibration data, ancillary and auxiliary data, as well as MSX program and software documentation. The Data Centers can also distribute peer reviewed Level 3 & 4 data products. Users should contact the BDC or MDDC for information on formats, availability of data sets or products, distribution media and similar questions. Initial catalog searches may be performed via the Internet or at either of the BMDO Data Centers prior to obtaining release authority from the MSX Program Office, but no data will be sent to any user not on an access list. The BMDO Data Centers will also maintain distribution lists, to track which products were distributed to which users, for configuration control.

6.5 PI Teams The PIs will be the primary source of peer reviewed Level 3 and 4 products. Level 3 and 4 products produced within the MSX community may not be released outside the MSX community until they have been peer reviewed. The PIs are required to provide the primary archive with distribution lists indicating which products have been distributed to which users, for configuration control.

Prospective users may contact individual PI teams for help in determining the availability of data suitable to their needs. The amount of such assistance that can be provided to non-BMDO users will, however, be limited by available resources and the team's responsibilities to the MSX program and the principal customer communities. Appendix B includes a few keywords about each PI's general area of scientific interest.

APPENDIX A

Points of Contact for Information on Data Release and Distribution

MSX Program Office:
c/o Mrs. Mary C. McLean
Photon Research Associates
1911 N. Ft. Myer Drive, Suite 408
Arlington, VA 22209
Phone: (703) 243-6613
Fax: (703) 243-6619
Email: mmclean@tecnet1.jcte.jcs.mil

MSX Data Manager:
Mr. Robert E. McInerney
Phillips Laboratory /GPD (AFMC)
29 Randolph Road
Hanscom AFB, MA 01731
Phone: (617) 377-3718
Fax: (617) 377-5640
Email: weinfurt@plh.af.mil

MSX Data Systems Coordinator:
Mr. Jim McDonough Phone: (603) 891-0070 ext 217
Mission Research Corporation
One Tara Boulevard
Nashua, NH 03062-2801
Fax: (603) 891-0088
Email: jmcdonough@mrcnh.com

BMDO Backgrounds Data Center:
Mr. David Hardin
Naval Research Laboratory (BDC) Code 7604
4555 Overlook Ave., S.W.
Washington, DC 20375-5000
Phone: (202) 404-7829
Fax: (202) 404-8445
Email: hardin@bdcv8.nrl.navy.mil

BMDO Missile Defense Data Center:
MDDC Librarian
Teledyne Brown Engineering - MS 200
300 Sparkman Dr., NW
P.O. Box 070007
Huntsville, AL 35807-7007
Phone: (205) 726-2645
Fax: (205) 726-1193
Email: mddcdata@nebula.tbe.com

CEDAC
Mr. Andy Nicholas
JHU/APL
Bldg 13N-216
Johns Hopkins Rd
Laurel, MD 20723-6099
Phone: (301) 953-6000 ext. 3501
Fax: (301) 953-6119
Email: Andreas_Nicholas@jhuapl.edu

EMDAC
Mr. Gil Abrams
2101 E. El Segundo Blvd
El Segundo CA 90245
Phone: (310) 322-9933
Fax: (310) 322-9936
Email: gabrams@hera.emdac.nres.com

PL DAF (Phillips Lab Data Analysis Facility)

Dr. John Wise
PL DAF/GPO
29 Randolph Road
Hanscom AFB, MA 01731-3010

Phone: (617) 377-5449
Fax: (617) 377-8797
Email: jwise@pldac.plh.af.mil

SDAC

Mr. Joe Baldassini
MIT/LL
244 Wood St.
Lexington, MA 02173

Phone: (617) 981-4406
Fax: (617) 981-0991
Email: prospero@ll.mit.edu

STBDAC

Dr. Daniel Morrison
JHU/APL
Johns Hopkins Rd
Laurel, MD 20723-6099

Phone: (301) 953-6000 ext 4172
Fax: (301) 953-6670
Email: Danny_Morrison@jhuapl.edu

CTDAC

Mr. Tom Keeney
USASSDC-CSSD-SD-P
P.O. Box 1500
Huntsville, AL 35807-3801

Phone: (205) 895-3179
Fax: (205) 895-3236
Email: keeneyt@ssdch-usassdc.army.mil

APPENDIX B

MSX POCs and Principal Investigators

Project Scientist (general technical and policy information):

Dr. John D. Mill, ERIM
c/o Photon Research Associates
1911 N. Ft. Meyer Drive
Arlington, VA 22209
Phone: (703) 243-6613
Fax: (703) 243-6619
Email: jmill@erim.org

Chief Scientist (general technical information):

Dr. A. T. Stair, Jr.
Visidyne
10 Corporate Place
Burlington, MA 01803
Phone: (617) 273-2820
Fax: (617) 273-1068
Email: ats@bur.visidyne.com

Early Midcourse Targets (target deployment, acquisition and tracking):

Mr. Glenn Light
Aerospace Corporation MS M5-643
P.O. Box 92957
Los Angeles, CA 90009-2957
Phone: (310) 336-7008
Fax: (310) 336-6885
Email: light@aerosbsdmac.aero.com

Cooperative Targets (target signatures and discrimination):

Mr. William T. Prestwood
USASSDC/CSSD-SD-P
P.O. Box 1500
Huntsville, AL 35807-3801
Phone: (205) 955-2116
Fax: (205) 955-2125
Email: prestwoodw@ssdch.army.mil

Celestial Backgrounds (astronomy and astrophysics):

Dr. Steve Price
Phillips Laboratory
Optical Environment Division/GPO
Hanscom AFB, MA 01731-3010
Phone: (617) 377-4552
Fax: (617) 377-8780
Email: price@plh.af.mil

Earthlimb Backgrounds (IR remote sensing):

Mr. Robert R. O'Neil
Phillips Laboratory (AFMC)
Optical Environment Division/GPO
Hanscom AFB, MA 01731-3010
Phone: (617) 377-4775
Fax: (617) 377-8780
Email: oneil@pldac.plh.af.mil

Shortwave Terrestrial Backgrounds (UV/Vis remote sensing):

Dr. Gerry J. Romick
JHU Applied Physics Laboratory
Rm 24E-114
Johns Hopkins Road
Laurel, MD 20723
Phone: (301) 953-6353
Fax: (301) 953-6670
Email: gerald_romick@spacemail.jhuapl.edu

Contamination (spacecraft and sensor contamination, thermosphere composition):

Dr. O. Manuel Uy
JHU Applied Physics Laboratory
Rm 13-N226
Johns Hopkins Road
Laurel, MD 20723-6099
Phone: (301) 953-5334
Fax: (301) 953-6119
Email: manny_uy@.jhuapl.edu

Space Surveillance (orbital debris, thermosphere density and drag):

Dr. E. Michael Gaposchkin
MIT Lincoln Lab
P.O. Box 73
Lexington, MA 02173
Phone: (617) 981-3403
Fax: (617) 981-0991
Email: gaposchkin@ll.mit.edu

Data Certification and Technology Transfer
(calibration, sensor performance, space radiation environment):

Dr. Thomas L. Murdock
General Research Corporation
5 Cherry Hill Drive, Ste 220
Danvers, MA 01923
Phone: (508) 777-6323
Fax: (508) 777-6537
Email: tmurdock@grci.com

APPENDIX C

Data Subject to Multiple Release Authorities

A separate agreement on data release/sharing procedures will be made with the program management of each cooperative target observed by MSX, and with any corollary sensors participating in MSX experiments, if those corollary sensors have data distribution restrictions in addition to those of the MSX program.

For cooperative target programs, each agreement will cover, as a minimum, access to and handling of MSX-collected data by the target program personnel. In addition, each agreement will address any data release restrictions imposed by the cooperating target program on access to and handling of its data by members of the MSX community. Each agreement will also cover procedures for access to the cooperative program's data by the MSX customer community (eg. BMDO and SBIRS).

For corollary sensors, each agreement will cover, as a minimum, any data release restrictions imposed by the corollary sensors on access to and handling of their data by members of the MSX community. Each agreement will also cover procedures for access to the corollary sensor's data by the MSX customer community (eg. BMDO and SBIRS).

Agreements for both cooperative target programs and corollary sensors must be consistent with the provisions of the MSX Data Release Policy concerning data access, distribution, and release. Written agreements will be negotiated by the MSX PIs initiating the cooperative targets experiments or corollary sensor usage, in cooperation with MSX Data Management, prior to a data collection event involving the cooperative targets or corollary sensors. As each agreement is documented and approved, it will be added to this policy in this appendix.

APPENDIX D

Post-Mission Distribution Authorization

APPENDIX E

Acronym List

BDC	Backgrounds Data Center
BMDO	Ballistic Missile Defense Organization
DCATT	Data Certification and Technology Transfer
DoD	Department of Defense
DPC	Data Processing Center
DQI	Data Quality Indices
MDDC	Missile Defense Data Center
MOC	Mission Operations Center
MSX	Midcourse Space Experiment
OSDP	On-board Signal and Data Processor
PAT	Performance Assessment Team
PI EC	Principal Investigator Executive Committee
SBIRS	Spaced Based Infrared Systems
SBV	Spaced-Based Visible Sensor
SPIRIT III	Spatial Infrared Imagining Telescope III
UVISI	Ultraviolet and Visible Imagers and Spectrographic Imagers

APPENDIX F

Routine MSX Data Flow

The MSX data management system has been developed to provide all required MSX data to the Principal Investigator teams as quickly as possible. It is a distributed system which takes advantage of parallel data flow paths where possible.

MSX data is downlinked from the spacecraft to the Mission Operations Center at JHU/APL. The MOC digitizes and decommutates the data, puts them in time order, and separates them by sensor. The MOC then sends the data to the sensor Data Processing Centers (DPCs), the Attitude Processing Center (APC), and the BMDO Data Centers. The Data Centers then send the data associated with a particular PI team's experiments to that team's Data Analysis Center. Because the Shortwave Terrestrial Backgrounds DAC, Contamination DAC, UVISI DPC and Contamination DPC are all co-located at JHU/APL, these DACs receive data from these DPCs. DPCs (and associated Performance Assessment Teams) may exchange data in the course of their work on sensor performance characterization. The DCATT PI team members may also get data directly from the DPCs for the same reason. MSX users in a given organization will usually receive data from the MSX center (MOC, DPC, DAC or Data Center) with which they are associated.

APPENDIX G

World Wide Web Guidelines

The use of the World Wide Web as a means to access and distribute information and data is being implemented by the MSX Program Office and its affiliates. However there are important issues to consider regarding approval and access restrictions when posting government owned information for public access.

The MSX Program Office provides the following direction to those organizations and agencies involved in the MSX Program who wish to publish MSX related World Wide Web pages:

There are no restrictions for posting information that has been previously approved for public distribution by BMDO.

The agency must receive PO approval to post MSX data or information that has NOT previously received Program Office approval.

Information, data and data products that have not been approved for public release and are not covered by the MSX Data Release Policy can be posted to a Web site if there are approved access control restrictions in place limiting access to MSX community sites. (Examples include planning products, definitive attitude and most ancillary files, auxiliary data, DMIs, DQIs, and PI analysis notes.) These products may be submitted for approval for public distribution to alleviate access control restrictions.

Information, and data products with restricted access based on the MSX Data Release Policy may be posted to a Web site if there are approved access control restrictions in place that limit access by user name.

The agency must have the following procedures approved by Data Management and the Program Office before requesting PO approval for posting Web pages:

1. Documented process for approval of information for public release.
2. Implementation plan for any pages that require restricted access. (e.g. use of firewalls, IP registration, Username/password control, etc.)
3. Test plan for assuring that any restricted access is secure.
4. Operations procedures for monitoring access attempts to identify any potential break-ins and standard electronic security procedures and tools for control and maintenance of Internet sites (E.g., usage monitoring, password maintenance, user currency audits and surveys, etc.)

The following chart provides an indication of the level of access allowed for various categories of **UNCLASSIFIED** data:

Information Type	Approval Channel	Minimum Protection Required
Not Sensitive, Approved for public release	None required	Unlimited Access - Unencrypted
Not Approved for public release, Not covered by Data Release Policy	PO	Limited to MSX community, IP address- Unencrypted
Not Approved for public release, Covered by Data Release Policy	PO	Restricted by user name and password - Unencrypted
Under NO CIRCUMSTANCES may CLASSIFIED Information be placed on a Web server connected to the Internet!		

The MSX Program Office provides the following guidance for developing Web pages to take advantage of the World Wide Web's inherent features:

Avoid duplication of information - point to the BDC MSX page and other existing pages with information approved for release whenever possible.

Provide BDC with a pointer (URL) to your site when it is ready. Have URL point directly to your MSX related pages, not to your organization's home page. This will avoid the confusion of where the user should search.

1. When providing pointers to your site from another, if there are any access restrictions, add a note indicating what restrictions are in place. This will avoid wasting the user's time attempting to access a page for which he/she is not unauthorized to access.

Be aware of the Carnegie-Mellon Crisis Response Action Center in the event of attempted break-ins.

APPENDIX H

Peer Review Process

The basic peer review process follows the monthly cycle (post launch) of the PI Executive Committee meetings. When a product or process is ready for peer-review, the author or sponsoring PI notifies the Program Office (Mrs. McLean), to get on the agenda for the next meeting. Two weeks prior to the meeting, descriptive material on the product or process is sent to the Program Office for distribution to the PI Executive Committee. The material should include the algorithms or methodology used to produce the product, complete examples of the product in an appropriate format, and a discussion of the uncertainty or error associated with the product. At the PI Executive Committee meeting, the author will present his work for peer review. It is expected that any questions the PIs have about the work will be resolved during the meeting. In general, it is expected that a decision will be reached during the meeting. After peer review, the MSX Program Office will send a formal letter to the author and sponsoring PI, indicating that the product has successfully passed peer review. A copy of this letter should accompany the analysis product when sent to a Data Center for archive.

There are several circumstances where it is desirable to deliver products to a customer faster than the peer review cycle would allow. For analysis products which need to be produced and distributed very quickly, such as some of the quicklook products from the target experiments, a subset of the PI executive committee can be called by the sponsoring PI to review the products with a few days' turn-around. Abstracts of papers to be presented at conferences can be faxed or emailed to the PI EC. PIs are required to get concerns back to the Program Office and the sponsoring PI within a week. A similar quick review of images to be released for publicity purposes is being developed.

APPENDIX I

Data Integrity Review Process

In accordance with the MSX Data Access Policy paras 4.4.5 and 5.1.2, non-MSX program users who work with Level 1A data must identify the processes and products used to generate the specific Level 2/2A data used as a basis for technical papers or Level 3 and 4 analysis products. MSX Data Management will develop implementing procedures and forms. Non-MSX program users intending to publish or distribute technical papers or analysis products must submit completed forms to the MSX Data Manager for a Data Integrity Review prior to publication or distribution.

Review procedures are applicable to the following output data products: Level 2/2A data from UVISI, SBV, SPIRIT III, and CE.

Using the information submitted with each product under consideration, the MSX Data Manager will provide an independent verification that the correct versions of CONVERT and calibration files were used to generate the Level 2/2A products. In the event that the number of Level 2/2A products to be reviewed is too large to be examined in a reasonable amount of time, the Data Manager may opt to examine a representative sample of the products.

The data integrity review is not required if the non-MSX program users obtain Level 2/2A products a BMDO Data Center, rather than producing them himself from Level 1A data.

APPENDIX J

Miscellaneous Notes

1.0 **Introduction**

These end notes address topics of concern primarily to the MSX community, and not the general scientific community.

2.0 **Data Handling Prior to CONVERT Certification**

2.1 For some period of time after launch, not all the pieces will be in place to produce certified Level 2 products from all the CONVERTs. To produce certified data, the following must be in place:

a) certified Pipeline processing algorithms,
b) certified CONVERT algorithms,
c) certified anomaly bounds, and
d) certified calibration coefficients.

The SPIRIT III anomaly bounds and some of the calibration coefficients will not be certified prior to launch. Data processed through Pipeline prior to anomaly bound certification will have an anomaly set in the anomaly or DQI file which will cause the data to be flagged as "Not DCATT Certified" when run through CONVERT. In order for the data to be certified, it must be re-run through the Pipeline after the anomaly bounds have been certified. Data which is "Not DCATT Certified" must be presented to the PI Executive Committee for peer review before it can be considered validated.

2.2 Prior to the certification of the complete CONVERT package (Section 2.1, items a-d above) for an instrument, data from that instrument will be distributed to MSX users only.

3.0 **Anomalous Data**

When anomalies occur in a data set, it is possible that only part of the data in a data set is anomalous, and the rest is "good" data. Therefore a number of approaches have been developed to make use of the "good" data to produce certified results. It has therefore been decided that verified data which contains anomalies can still be distributed beyond the MSX community. Examples of how anomalies in a data set can be handled are described below.

3.1 **Low Level Anomalies** Anomalies which indicate sensor performance which is still within the certified operational envelope, but are used as indicators of potential problems by the PAT teams. This type of anomaly will not cause the data set to be uncertified.

3.2 **Serious Anomalies** Anomalies which indicate sensor performance which is outside the certified operational envelope of the sensor. Data containing this type of anomaly will cause the data set to be uncertified. For SPIRIT III, for example, if the source of the anomaly is some set of malfunctioning pixels, these pixels may be "masked" in CONVERT processing using the user

defined bad pixel mask. This mask removes the malfunctioning pixels from the data stream, so they will not affect the certification status of the processed Level 2/2A data.

3.3 **Anomalies Occurring During DCATT Bracketing Sequences** Before and after each data collection event (and at PI-defined intervals within a data collection event), a DCATT bracketing sequence will be run to characterize the performance of the sensor at that time. If serious anomalies occur in a DCATT bracketing sequence, the DCE(s) (or portions of a DCE) between that bracketing sequence and those immediately before and after cannot be automatically certified by CONVERT.

3.3.1 **Anomalies which only affect a few pixels** The pixels in question can be masked using the user defined bad pixel mask (see 2.2).

3.3.2 **Anomalies which affect the entire DCATT sequence** For example, a temperature out of range for an array. For those arrays not affected by the anomalies, the data can be certified through the CONVERT process. The user has the option of processing the data affected by the anomalies through CONVERT, and analyzing the results. This analysis must be presented to the PI Executive Committee for Peer Review, and a case made for certification of the data set. With the agreement of the PI EC, the data set can then be considered certified. The certification of the data set will be documented in a letter from the PI EC to Data Management, to be distributed to users of that data set. Until the Peer Review process has been successfully completed, the Level 1A data in question cannot be labeled validated.

APPENDIX K

Visual Only Data Release

This appendix to the Data Release Policy (DRP) and these procedures apply to data that has not undergone the formal peer review process for scientific content as described in the Data Release Policy. This policy does not supersede the requirements and procedures for public release of scientific data as stated in the DRP; it creates a policy to data releases not covered within the DRP. Specifically, it applies to data, that, for example, may not have yet been verified or validated but are to be presented for viewing, but NOT distributed or handed out by, any member of the MSX community. The MSX community for this purpose is anyone on the MSX data access list designated an "MSX" user. It is the responsibility of each PI or MSX team lead to enter this process for all proposed data releases from his team. All presentations of data by any MSX user must be coordinated with the PI for whom the data was collected.

Visual presentations of MSX data or analysis products may be made by any MSX user to his chain of command or personnel within his home institution only after the data products have completed this peer review. No hard copies or electronic copies of MSX data or data products may be handed out, and it must be made clear in the presentation that these are preliminary data products.

Visual presentations to other MSX users are unrestricted, provided it is made clear in the presentation whether or not the products have been peer reviewed.

Visual presentations (no hard copy or electronic distribution) outside the MSX community must undergo peer review by the MSX Principal Investigator Executive Committee (PIEC). The PIEC is composed of the MSX PIs, the Program Office, The Project Scientist, and the Chief Scientist.

For chart/viewgraph type presentations: the presenting PI or Team lead should email to the PIEC that he has a visual-only presentation to be reviewed for approval. This email note should contain the following information: Date of the presentation, title of conference or meeting, expected type of meeting attendees, summary of content of the briefing to be presented, and how it will be sent to the PIEC the presentation: fax, email, or web page. Presentations must be sent to the PIEC far enough in advance of the presentation date to allow for PIEC review.

For video presentations: the presenting PI or Team lead should email to the PIEC that he has a video presentation to be reviewed for approval. This note should contain the following information: Date of the presentation, title of conference or meeting, expected type of meeting attendees, and summary of content of the video to be presented. A copy of the video must be sent to the Program Office and shown to a subset of the PIEC before the public presentation. The PI whose DCEs are included in the video must be among this subset. The video must also either be shown at the next PIEC meeting or copies sent to all PIEC members.

Written (email) comments are to be sent (as a minimum) to the Program Manager and Project Scientist (or their designees) and the presenting PI. Comments should be sent no later than (standard: two weeks, expedited: three working days) after receipt of presentation for unclassified material, and no later than seven working days later for classified material. The presenting PI/Team lead is not required to accept all comments and suggestions from his colleagues, but final

approval will be granted only after all comments and suggestions are resolved to the satisfaction of the MSX Program Office. The Program Manager (or designee) will adjudicate any conflicts and give the final approval/disapproval based on PIEC input.

This review is not a substitute for the BMDO review for approval for public release. If the intended audience includes individuals who are not in US government agencies or their contractors, BMDO public release authorization must also be received. Requests for public release approval should be coordinated with the MSX Program Office in the usual manner.

Any material sent to the Program Manager for his use must be coordinated with the PI for whom the data was collected and will be made available to the PI EXEC as soon as possible, preferably before the data product is shown. Distribution of MSX material to any other BMDO personnel must have undergone this peer review process and must be coordinated with the MSX Program Manager prior to distribution.